

**Chapter Project****Collecting Rocks**

All rocks are the same, right? Many people think that is true, but they couldn't be more wrong. There are many different kinds of rocks, and each has a story to tell about where and how it formed. If you look closely at rocks, you'll find there are striking differences between them, just as there are differences between various kinds of trees or birds. In this project, you will get to hunt for rocks at several locations in your community and create a display of the rocks you collect.

Project Rules

- Brainstorm a list of places in your neighborhood or community where you can safely and legally collect rocks. You should be prepared to discuss your list with your teacher at the Check Your Progress at the end of Section 1.
- Prepare to collect rocks by gathering the materials you will need. These include a strong bag, such as an old backpack. You'll also need resealable plastic sandwich bags to bag individual rock samples, and paper and a pencil. A rock collector needs to wear gloves, too.
- Collect rock samples at neighborhood locations or other places agreed upon by you and your teacher. Be sure to get permission before collecting on private property. Keep a good record as you collect. Worksheet 1 will help you in this task.
- Bring your rock samples to class, where you can examine them closely and perform tests to help you classify and identify them.
- Classify each rock as sedimentary, igneous, or metamorphic. Worksheet 2 will help you in this task.
- Identify each rock sample using a field guide to rocks and minerals. Your teacher may provide such books, but you might also see if a family member or friend will let you borrow one.
- Create a display of your rock collection that shows off your best rock samples and your best efforts at classification and identification. Use an index card to make an information card for each rock in your display. On this card include as much information about the rock as you can.
- Prepare a presentation to the class of your rock collection. As part of your presentation, describe each rock, including where you found it and how you classified and identified it.

Project Hints

The best places to hunt for rocks are places where many rocks are exposed. These include dry stream beds, roadcuts, and farm fields. Such places can be dangerous, though. Never go rock hunting without someone with you, such as an adult family member or a classmate. Be careful when collecting in places where loose rocks might fall.

Rocks ▪ *Chapter Project***Overview**

For many places, you need to get permission to collect rocks. This is true for national and state parks and private property. Go to the authorities and explain your project. If permission is denied, find other locations.

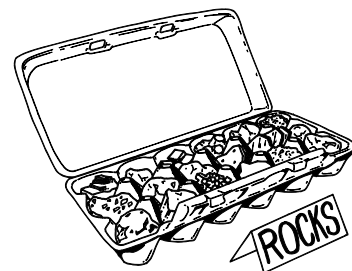
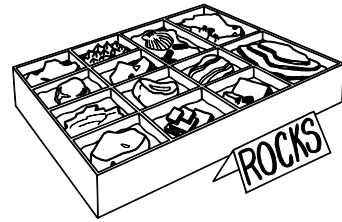
When you go rock collecting, you should wear heavy shoes as well as long pants. Be prepared to hunt for rocks in places you might not normally walk.

Sometimes rock samples are too big to display easily or are dirty or dull. Breaking apart such rocks provides smaller samples and cleaner surfaces. Your teacher will show you how to break apart rocks safely. Do this at school in a place designated for that purpose. And always wear goggles.

Examine each rock with a hand lens. Notice its texture. Do a scratch test. Note its color. Try to identify the minerals in it. Determine the rock's density or heft. In other words, do everything you can to correctly classify and identify the rocks you collect.

As you create your rock display, think of how you've seen other sorts of collections displayed. Display each rock in a separate compartment, with numbers on the rocks or labels nearby. Your information card can be part of the display, or you could make special labels. The figure shows two rock collections and might give you some ideas.

As you prepare your presentation, think of what you want to say and the order in which you want to present the information. You may want to make notes on index cards to help you remember what you want to say.

**Project Time Line****Task**

1. Plan where you'll collect rocks and review the plan with your teacher
2. Gather materials needed for rock collecting
3. Collect rocks at several locations
4. Classify rocks into major groups
5. Identify rocks using field guides
6. Create rock collection display
7. Present rock collection to class

Due Date

Name _____ Date _____ Class _____

Rocks ▪ *Chapter Project*

Worksheet 1

A Record for Each Rock

You will need to make a record card for each rock that you collect. To help you in this task, make copies of this sheet so that you have one for each rock. Either fill out the sheet as you collect rocks or use your field notes to fill out the sheet later.

Rock number _____

Date found _____

Location where found _____

Description of location, including rocks near this rock _____

Description of rock _____

Classification (igneous, sedimentary, or metamorphic) _____

Reasons for classification _____

Identification of rock (specific kind of rock) _____

Reasons for identification _____

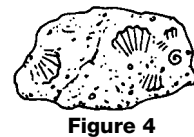
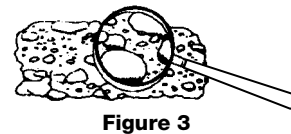
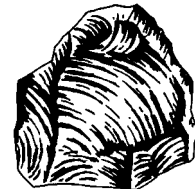
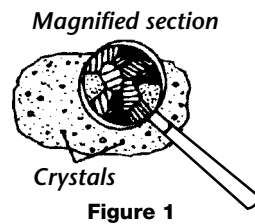
Source used for identification _____

Classifying Rocks into Major Groups

Classifying rocks into the three major groups is not always easy—for some rocks it can be difficult for anyone but a geologist. But for many rocks, you can determine their classification if you know the important characteristics of each major group. Study the characteristics below for each major group of rocks. Then examine the rocks you collect and use these characteristics to help you classify the rocks.

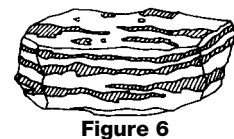
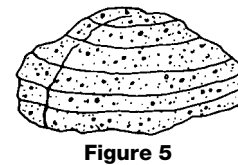
Characteristics of Igneous Rocks

- Igneous rocks often contain grains that can be seen with the unaided eye. See Figure 1.
- Some igneous rocks have no visible grain and appear glassy. See Figure 2.
- Igneous rocks may be found in many different colors and often show different-colored grains that are not in bands. See Figure 3.



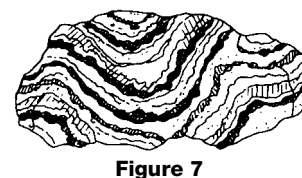
Characteristics of Sedimentary Rocks

- Clastic sedimentary rocks are made up of fragments of other rocks and look very much like rocks or particles cemented together. Some sedimentary rocks have a range of grain sizes, while others consist mainly of one grain size. See Figure 5.
- Organic sedimentary rocks are made up of plant and animal products or remains. Such rocks may contain fossils. See Figure 6.
- Sedimentary rocks often have distinct parallel layers. See Figure 7.
- Many sedimentary rocks appear dull or earthy.



Characteristics of Metamorphic Rocks

- Metamorphic rocks often look like igneous rocks except that they are foliated, showing bands of different mineral grains. See Figure 6.
- Metamorphic rocks may show signs of bending or distortion. See Figure 7.
- The grains in metamorphic rocks generally appear to be flattened.



Rocks ▪ Chapter Project

Scoring Rubric

Lab Chapter Project Collecting Rocks

In evaluating how well you complete the Chapter Project, your teacher will judge your work in the following categories. In each, a score of 4 is the best rating.

	4	3	2	1
Collecting Rocks	Collects 12–15 rock samples and accurately describes each rock and the location where it was found.	Collects 10–12 rock samples and accurately describes most of the rocks and the locations where they were found.	Collects 8–10 rock samples and describes most of the rocks and the locations where they were found.	Collects fewer than 8 rock samples and describes only a few of the rocks and the locations where they were found.
Creating a Rock Collection	Makes a correct classification of all the rock samples, creates a logical and attractive display, and correctly identifies over half of the rocks.	Makes a correct classification of most of the rock samples, creates an attractive display, and correctly identifies approximately half of the rocks.	Makes a correct classification of about half of the rock samples, creates an attractive but somewhat unorganized display, and correctly identifies fewer than half of the rocks.	Makes a correct classification of a few of the rock samples, attempts rather unsuccessfully to create a display, and correctly identifies only 1 or 2 of the rocks.
Presenting the Rock Collection	Makes a thorough and interesting presentation that includes a clear and thoughtful description of each rock in the collection.	Makes a thorough presentation that includes a thoughtful description of each rock in the collection.	Makes a somewhat unorganized presentation that includes a description of most of the rocks in the collection.	Presentation is poorly prepared and includes an effective description of only a few of the rocks in the collection.
Working Cooperatively (optional)	Takes a lead in collecting the rocks, creating the display, and presenting the collection.	Participates in all aspects of collecting the rocks, creating the display, and presenting the collection.	Participates in most aspects of collecting the rocks, creating the display, and presenting the collection.	Participates minimally in collecting the rocks, creating the display, and presenting the collection.